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SCIENCE

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THE RELATIONS BETWEEN ENGINEERING AND SCIENCE¹

WE may well approach our subject of the relation between engineering and science by defining these two.

Engineering is the application to man's use of special knowledge of mechanics and of the properties of matter.

Natural science is the correlation of natural phenomena, often combined with their discovery. Emerson says:

Science is nothing but the finding of analogy, identity in the most remote parts.

This finding of analogy is correlation. But though science has correlation for its essence it also includes discovery. Science thus has two aspects, it correlates the uncorrelated and hence empirically known phenomena, and it discovers new phenomena and correlates them simultaneously. Their correlation is of origin, congenital. Or, if you will not go so far with me, let us agree that engineering is essentially application and science essentially correlation with or without discovery. In this view engineering is not a science but an art with a scientific basis. A man who is an engineer may correlate his own or others' discoveries, as he may walk a mile or pledge a health, but he does it not as an engineer but as simultaneously a natural philosopher.

From this point of view pure science in

¹ Introductory address of the chairman of the Section of Engineering of the American Association for the Advancement of Science given at the meeting held by invitation of the American Society of Civil Engineers, the American Institute of Mining Engineers, the American Society of Mechanical Engineers and the American Institute of Electrical Engineers, New York, December 29, 1916.